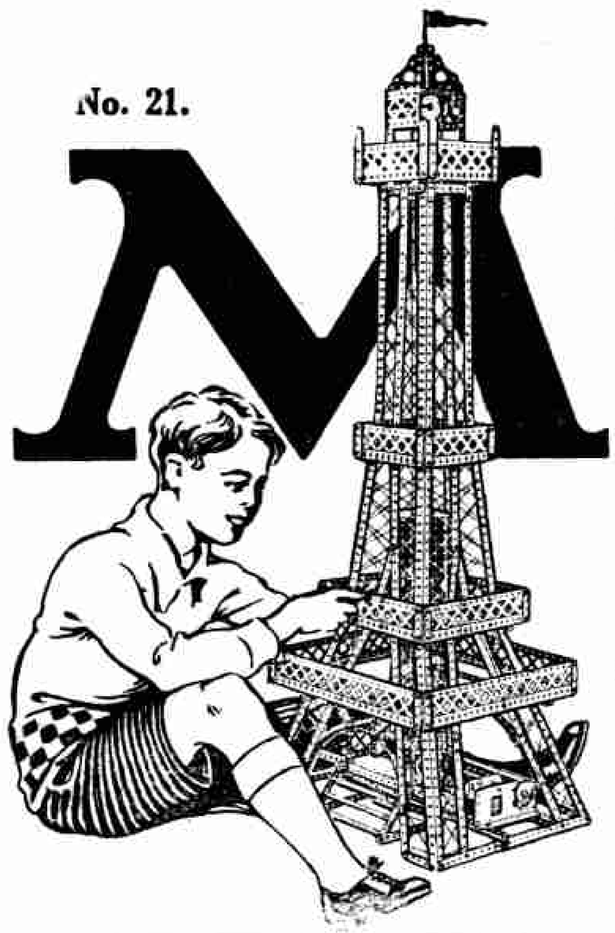
No. 21. NOVEMBER-DECEMBER, 1921.



MECCANO MAGAZINE

PRICE 1d

TO HELP MECCANO BOYS TO HAVE MORE FUN THAN OTHER BOYS.

The New Meccano Loom.

No model could better illustrate the wonderful genius of the Meccano system than this new model of the Meccano Loom. In this model every technical operation in the process of weaving is perfectly carried out in miniature, exactly as in every-day practice in actual manufacture. The Loom is operated simply by the turning of a crank handle, which sets in motion the whole of the necessary operations.

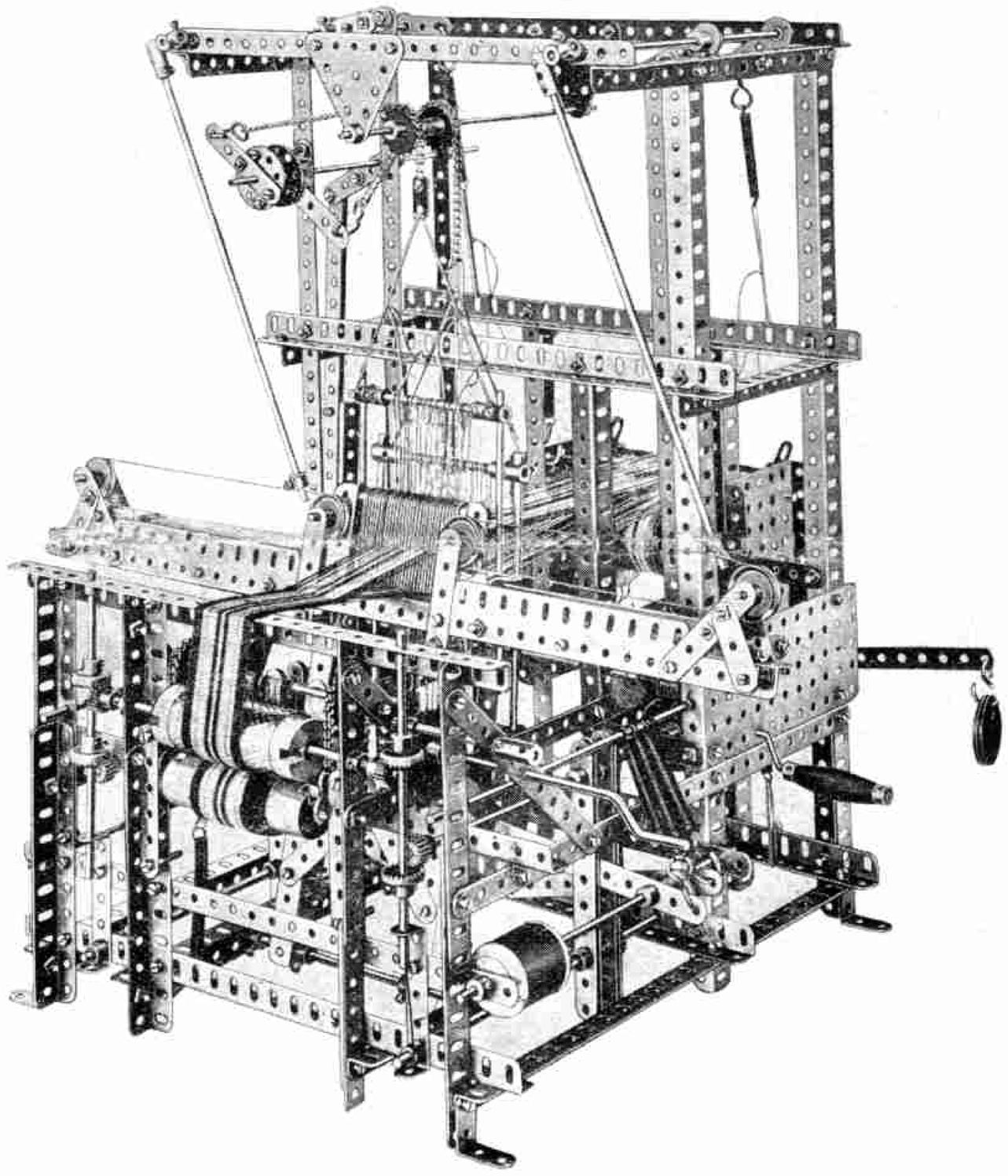
WARP AND WEFT. A woven fabric is composed of two elements, the "warp," or longitudinal threads, and the "weft," or cross threads. The inter-weaving of the warp by the weft is called the "picking motion," and this is effected by the passing of a thread from the shuttle which flies from one side of the loom to the other, and in doing so passes each time between the threads of the warp. Three distinct operations are necessary to carry this out, the first being the opening of the warp when some of the threads are raised for the second operation of picking, and finally the third operation called "beating up" the weft, when the weft is pressed into place by the reed. These three primary operations must be carried out by every loom no matter whether it is the hand loom of a cottager or the latest power-loom used in our largest spinning factories.

WEAVING FABRIC. Before cloth can be woven in a loom the warp threads must be wound evenly and in their correct places upon a roller, known as a "weaver's beam." This operation is carried out by a beaming frame, which is the subject of a special Meccano model. From the beam the warp threads are passed through the "healds," which consist of a number of wires, called "leaches," each having in its centre an eye or "mail," which to a certain extent, resembles the eye of a needle. The healds are assembled vertically in two—or sometimes more—frames, so arranged that when one heald frame is raised the other is pulled down. The healds thus serve to lift and depress the threads of the warp, so that the shuttle may be passed between, along with the weft.

The shuttle moves along the "slay" which supports and guides it as it is jerked from one side of the loom to the other by means of the "picking stick," suspended from above. Attached to the slay is the "reed," formed by a number of strips spaced with washers, and this moves forward with the slay after every crossing of the warp by the weft.

PREPARING TO WEAVE. In preparing to weave, the first thing to be done is to pass the ends of the warp from the beam (situated at the back of the loom) through the mails of the healds and then through the reed, one or more threads being passed through each division, and attach them to the taking-off roller. On turning the crank the shuttle is jerked across the loom and passes over the threads held down by the lower heald and beneath those raised by the upper heald, at the same time leaving in its wake a loose thread of weft. The slay then moves forward and brings up the reed which drives before it this thread or "first pick" of the weft. By continuing to turn the handle, the same process is repeated, the shuttle being again jerked back and across the loom this time from the other side and the reed moving forward again and pressing up the second pick against the first. The taking-off roller in the meantime slowly rotates and as the weaving proceeds it rolls around itself the woven fabric.

TEXTURE. The closeness of the texture of any material depends upon the number of warp and weft threads to the inch. In actual manufacturing fine cloth may have 125, or even more, threads to the inch both in warp and in weft.



PATTERN. The pattern depends upon the number of healds, the greater the number employed making a more complex pattern possible. For the weaving of very complex figures the warp must be divided among a large number of healds. In cases where specially intricate patterns are being worked, each individual warp thread may have its separate lifting apparatus. In such a case some automatic mechanism is necessary in order that the pattern may be preserved when working at a high speed. Such a lifting mechanism is used in the "Dobby" loom, a model of which can also be successfully constructed by means of Meccano.

HAND LOOMS. Hand looms are still in use in many parts of this country—in Scotland and Ireland for instance—and also in France and elsewhere. The cloth they weave has a peculiarly individual appearance and is quite easily distinguished from the fabric of the mechanical loom. Cloth may be woven in a hand loom to a width of 150in. or even greater.

Full instructions for building the new Meccano Loom are given in a beautifully illustrated sheet, on art paper, which shows not only the complete model but also sectional photographs of all essential details. The leaflet also gives full instructions for building a beaming frame. The price of this Instruction Leaflet is 4d. post free.

Editorial.

What the *M.M.* does for Meccano Boys.

There are lots of good things always going on in Meccanoland, the country of happy boys: new inventions, new models, new competitions, new ways of getting fun out of life. Meccanoland is a land of unbounded activity, enthusiasm and enjoyment. All the doings there are reported to Headquarters, and set down in the *Meccano Magazine* so that all Meccano boys may know of them and participate in them.

A Big Event in Meccanoland.

Just now the inhabitants of Meccanoland are all agog over the advent of the wonderful new series of Hornby Clockwork Trains. Some of the fortunate ones have already secured their sets, and are combining Meccano and Hornby Train fun in great style. Before the winter is far advanced the charming colourings of these trains will shed further brightness and animation on our land of sunshine.

A New Feature in the *M.M.*

The illustrated article in our last issue on the Admiralty Crane Lighter, No. 4, the largest pontoon crane in the world, has brought me so many letters of approval from my readers that I have arranged to publish a series of the world's engineering wonders in the *M.M.* You will find a further beautiful example on page 6 in this issue. To the large number of my readers who prefer to invent rather than copy, these fine structures furnish a splendid opportunity for creating new Meccano models.

Success of the New Meccano Chassis.

So great has been the demand for the instruction leaflet for building the new Meccano Motor Chassis (announced in the last number of our Magazine) that the supply which we had printed was entirely exhausted, and it has been necessary for us to print another edition. I advise any of my readers who has not yet secured his copy to send for it without delay. The leaflet is beautifully illustrated and printed on art paper and shows not only the completed model, but also sectional photographs of the gear-box, differential, etc. The price of the leaflet is 4d., post free.

A New Accessory Parts List.

A new edition of the Accessory Parts List is now ready. So many splendid new Meccano parts have been added to the system recently that it has been found necessary to print the new list in four-page form instead of in one large sheet as hitherto. This is the time of year when all Meccano boys overhaul their Outfits, make up deficiencies and add new parts before commencing the season's activities, and the new parts list is indispensable to them. It will be sent post free to any Meccano boy. The new form in which the list is printed is convenient for inserting in your Meccano Manual.

How to get the Meccano Magazine regularly.

The Meccano Magazine is now sold by most of the regular Meccano dealers but in order to prevent disappointment you should place an order with your dealer for a copy of each issue to be reserved for you. The price of each issue is 1d. If you experience difficulty we will mail you a copy regularly on receipt of 6d. for the next six issues, or 1/- for the next twelve.

Life Story of Meccano.

By Frank Hornby.

(*Continued.*)

During the whole of the time that the German manufacturers were struggling here to get into the constructional toy market and steal some of the Meccano business, we were rapidly extending our own business in Germany, and we found it necessary to take offices in Berlin, with large store rooms attached, to take care of the rapidly increasing business in that country. We sent over our own representative who got together an efficient organisation, and we commenced a campaign of advertising and demonstrating on the lines familiar to all Meccano boys in this country, and soon Meccano Outfits and models were a familiar sight in the leading shops throughout the country. Even in Nuremburg, which up to then had been considered the home of the toy manufacturing industry, we had customers who purchased heavily from us. Many German toy dealers who came to England called to see us, and spoke enthusiastically of the business they were doing in our goods, and of the wonderful way in which the German boys were fascinated with the possibilities of Meccano.

My last visit to Berlin was during the week before the War broke out. It had been a most successful visit, and promised to be followed by even further extensions in the Meccano business. At that time the War Cloud was hanging heavily over Europe, but I had never a thought that England would be drawn into any struggle that might take place. For several reasons I had to hurry back to England, and this was most fortunate as it happened, as I got out on the last train which left Germany before all Englishmen remaining in that country were interned.

The War, of course, put an end to our German business for the time being. Our Manager was interned in Ruhleben, and the business was taken over by the German government, who placed an official in charge. The stocks of Meccano on hand were sold, and the proceeds appropriated by the German government, and finally, what remained of the business, including patents, trade-marks, good will, etc., was sold to a German house.

It was a great disappointment to me to have our German business, started under such promising and encouraging conditions, brought to an end so suddenly and completely, but the only thing to be done was to concentrate our energies in other directions, and wait patiently for the time when we could again give German boys an opportunity of coming under the happy and stimulating influence of the Meccano hobby.

I think that probably the greatest number of imitations of the Meccano system have emanated from America, and the complete history of the rise and downfall of them all would fill a very large volume. The first to make its appearance was a system introduced under the name of "American Model Builder." This system was almost an exact duplication of Meccano, both in regard to the design of the parts, and to the precise contents of each outfit. The Meccano Manual, the compilation of which had taken me years of thought, study, and experience, was copied almost in its entirety, and in fact, except for the lack of finish and smartness of the presentation, one of these imitation outfits might easily have been taken for a genuine Meccano outfit.

This was about 10 years ago, and you can readily imagine the deep concern I felt when I discovered that all that I had worked and striven for for so many years had been misappropriated by a newcomer, whose sole intention was to rob me of the business belonging wholly to me. I immediately sailed to New York, and had a consultation with a well-known firm of Attorneys, as to the proper steps to be taken to put an end to this grossly unfair form of trading. It seemed to me that such a flagrant breach of the laws of copyright and patents as this, could very quickly be put an end to, and I felt very sure that I should soon be able to compel the manufacturers of the imitation line to withdraw their outfits from the market. I was, however, destined to have a bitter experience of the law's delays, and the enormous cost of putting into operation a simple act of justice. The case lasted for 9 years, cost my Company many thousands of pounds, and ended in the complete restoration of our rights, and the final establishment of our copyrights, patents and other privileges.

(*To be continued.*)

Suggestions by Meccano Boys.

These columns are reserved for dealing with suggestions sent in by Meccano users for new parts, new models, and new ways of making Meccano model-building attractive. We are always glad to hear from any Meccano boy who has an idea which he considers will be useful to the Meccano system.

F. G. Smith (London).—We have had in mind loosely swivelling an octagonal strip coupling on the throw of the crank shaft, and we may introduce this later, when we have had an opportunity of testing its application.

Stanley and Charles Yelland (Leeds).—We do not recommend points made with Meccano strips. It would be much more satisfactory to use our standard rails and points. Pedals for a bicycle might be made by fixing a No. 62 crank at each end of a straight rod, and a pivot bolt No. 33A on each crank to form the pedals.

John Spink (Leeds)—The type of engine on the Hornby No. 2 Goods and Passenger sets is the same. We have under consideration the coupling up of the driving wheels.

H. S. Batten (Bristol)—We are pleased to know that you like our Hornby Trains. There are six curves required to make a two-foot diam. circle, and eight for the four. Curved and straight rails may be purchased separately.

J. Hemsley (Littlehampton).—We shall give consideration to your suggestion for a smaller crank.

H. Hawkins (Reading).—Your suggestion for a piston and cylinder is one to which we shall give consideration later. Also circular ends to form boilers.

B. Lewis (Bournemouth).—Your suggestion for a punch is a good one, but would constitute a special apparatus, and would not have an interchangeable purpose in accordance with the Meccano principle.

Eric Cheadle (Dumfries).—The Meccano rod is too small in diameter to slot for the purpose of sliding a wheel or clutch, and it might affect its usefulness for other purposes. We are engaged on a device for getting over this difficulty. With regard to the longer pinion we think you can get over your difficulty of changing gear by the use of our existing toothed wheels, as demonstrated in our Meccano Chassis.

Robert Peel (Harrogate).—See our reply to Eric Cheadle.

A. Morrod (Newcastle-on-Tyne).—We are at present engaged on a ratchet wheel and will announce its introduction when ready.

Kenneth E. B. Jay (Amersham-on-the-Hill).—It would take a lot of space to illustrate the various uses of the threaded boss. We would suggest however, that you obtain our No. 3 Manual, which will be ready shortly, and inspect some of the very beautiful models, to the construction of which we have applied it. The lathe is a model in which we use a threaded boss to traverse the tool holder.

Cedric Harvey (Cardiff).—It would not be practical to use a large tapered gear wheel such as you suggest which could also be used as a saw worked with a clockwork motor. There would not be sufficient power, and in any case a tapered wheel would bind in cutting.

Harry Hampton (Leith).—We do not think the rails you suggest would be effective. We recommend that you use our standard rails as supplied with Hornby Trains.

Hugh King.—We have abandoned the old funnel and hope shortly to introduce a much more efficient one. We have only published one Meccanograph Manual. We illustrate the movement you suggest in Model 315 of our regular Manual. We would recommend you to write for our new price list, which will give you prices of all the parts.

ERNEST H. ATKINS (Sutton).—See our reply to Rowland H. Alexander.

A. H. FELLOWS (Leamore).—We hope very shortly to issue a Meccano Wireless set, which will be capable of transmitting as well as receiving messages. It would not be possible to attach a speed regulator to our present Meccano clockwork motor.

W. H. MOORE (Narborough).—A contrate wheel with teeth only half way round would not effect your purpose. If two pinion wheels were operated, one at each side of our regular contrate wheel, the motion of each would be in opposite directions.

H. WATSON (Hoyland).—A 5½" perforated strip with the two end holes elongated, could only be used in a very limited way, and might militate against its use for other purposes.

GEORGE GRAVES (London).—We do not quite understand your suggestion. Perhaps you will write us again furnishing further particulars.

F. T. ORRILL (Bulivell).—Your suggestion for increasing the power of our clockwork motor is quite sound, but the length of run would be very much reduced.

J. COUDERC (St. Etienne).—We are interested in your suggestion for a worm wheel 10cm., and we shall be glad if you will send us a drawing of one example of how this would be applied.

J. W. HARVEY (Kidderminster).—We have recently introduced a cranked axle rod in our list of parts.

J. FLANIGAN (Liverpool).—We shall give your suggestion for cutting tools for model lathes consideration.

DAVID GARDNER (London).—We have lines of 2ft. and 4ft. diameter. The latter are perhaps what you require. Your account of your experiences with Meccano is very interesting.

W. RAYBOULD (Boxwich).—The difficulty of introducing a ½in. sprocket wheel is that the teeth could not be made sufficiently large to prevent the chain fouling the boss.

C. M. ALDRIDGE (Reading).—Would not our triangular plate serve the purpose for the bow; and a curved strip for the stern or counter of your model liner?

JAMES GREEN (Bristol).—We cannot see how you would start and stop a machine by the use of a ratchet wheel and cam such as you illustrate. We would like to have more particulars. Meccano is pronounced Mek-ah-no.

C. MICHAN (Patay).—We do not think it would be advisable to introduce a perforated plate as large as you suggest. A base plate upon which to mount a model could be made by bolting flat plates to angle girders practically to any size required. We think your suggestion for a tube to be used as a spacing piece between two plates or strips a good one, and it is one we shall introduce in our list. We think the most convenient length is 15mm.

V. H. THOMAS (Shirebrook).—No useful purpose would be served by generating electricity with a small engine and dynamo, and it would be very expensive.

J. AMER (Holloway).—Your suggestion is quite good, and we already employ different sizes strips superimposed and slightly bent to form springs for our Meccano Chassis. An angle bracket would serve the purpose of a bearing.

K. CONNOR (Seven Kings).—It would be cheaper and more efficient to use our regular triple throw eccentric than to put two flanged wheels together, taking the axle rod through the perforated holes.

LESLIE E. FLUX (Newport).—We have in mind the introduction of a signal arm and may issue it later.

C. I. HOPEWELL (Malvern, Natal).—We include a flat trunnion in our list of parts which will serve as a T piece; also a bucket capable of being attached to our sprocket chain.

ROWLAND H. ALEXANDER (Bitton).—We think your suggestion for smaller flat girder strips a good one and we shall arrange for them to be included in our next list of parts.

STANLEY WESTON (Briercliffe).—We sell a long thin screw driver which can be passed through the standard holes in the strips. It is No. 36A in the price list, and costs 1/9.

R. WOOD (London).—We are experimenting on a pallet for a clock movement and will announce its introduction when ready.

R. LE FEVRE (Bexley Heath).—The centre hole in the sleepers of our railway track is not only intended to enable the track to be screwed to the floor if necessary; but to connect the insulated chair carrying a third rail for use with our electric loco model.

A. CUNNINGHAM (Mossley Hill).—The metal from which we make our strips and plates is not thick enough to countersink the holes.

C. W. CROCKER (Teignmouth).—There would be no difficulty in connecting safety razor blades to our present face plate for a chaff cutter, but the other part of the machine would require to be thought out.

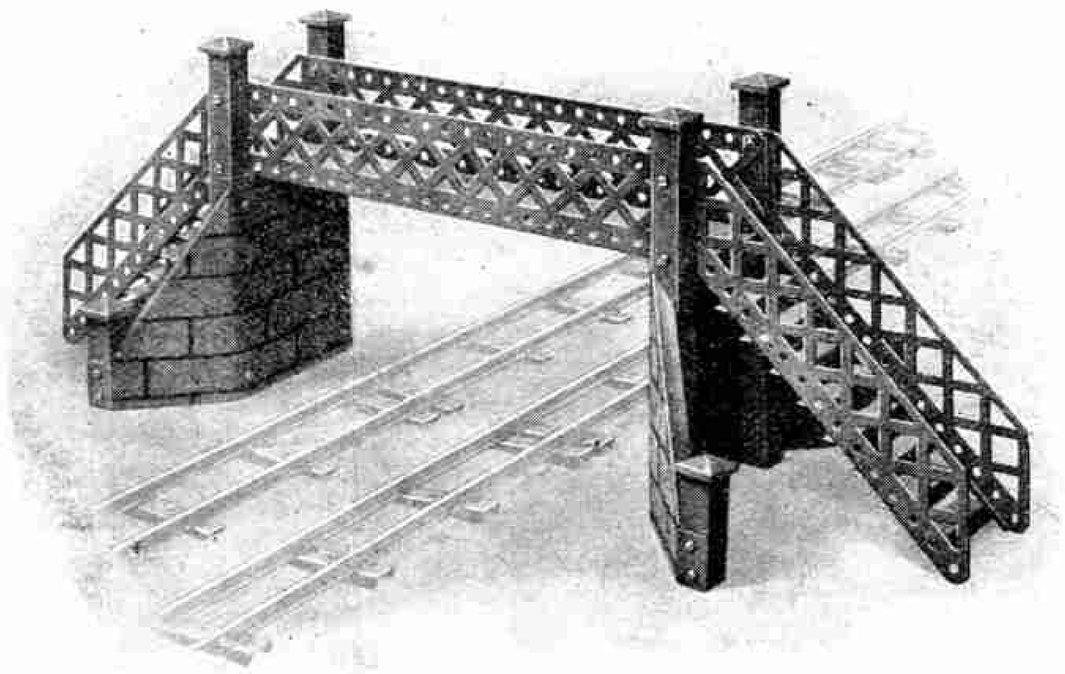
HARRY J. SAKER (South Darenth).—The cutter you suggest would be expensive to make and would only have one purpose.

H. J. CRONDACE (Mantzburg, Natal).—We illustrate in our electric manual, model 12, a motor starter which may be used for regulating the speed of our electric motor.

R. N. SMITH (Leicester).—A reinforced axle bearing may be made by superimposing several strips and bolting them together to the side plates.

BROSSE JACQUES (Loire).—We have already added to our list of parts a cone pulley giving three speeds which we think will serve your purpose.

The Hornby Lattice Girder Bridge.

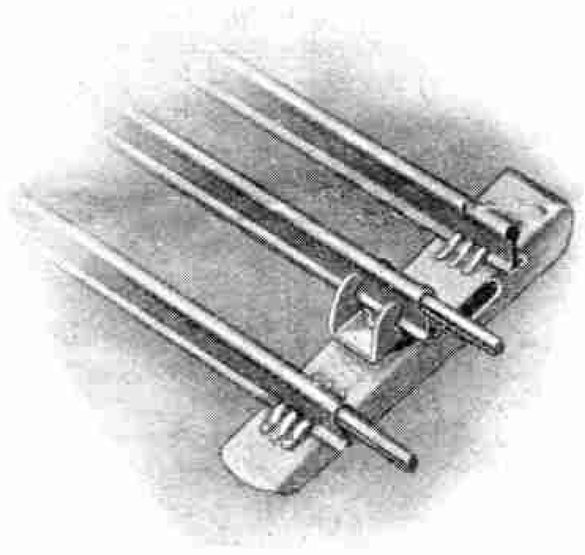


As will be seen from our illustration, this is a bridge of constructional type, strong and well proportioned. In the footway and steps, the design of the well-known Meccano braced girder has been followed, giving a pleasing and realistic appearance. The bridge is beautifully enamelled in colours.

It will be seen that the Meccano system of equidistant holes has been preserved, and signals made from Meccano strips, etc., may be erected on the bridge. The Hornby Lattice Girder Bridge is supplied dis-assembled for convenience of packing, and is erected by securing the foot bridge and steps to the upright columns with 12 nuts and bolts as shown in our illustration.

PRICE **10/6**

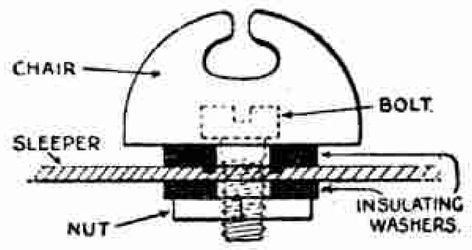
The Hornby Third Rail Track.



The regular Hornby Railway Track may be converted by any Meccano boy into an Electrical Track, by the fitting of a third rail with the parts mentioned below.

Each section of track, either curved or straight, will require for the purpose of conversion the quantities shown on the left-hand side of the undermentioned list.

The rail is fixed in the centre of the two regular rails by means of chairs, one being fixed to the end sleeper of each section. The chair is secured to the sleeper by means of a nut and bolt, which is insulated from the sleeper by fibre washers. Our illustration above shows the third rail in position, and the figure below clearly shows the method of fixing.



1. Single rails, straight or curved. (2ft. or 4ft. diameter circle) . .. per ½ doz. 9d.
2. Chairs, for holding single rails in position on the track .. .. per doz. 4d.

(*Continued top of next column.*)

2. Insulating bushes .. per doz. 6d.
2. Insulating washers .. „ „ 3d.
2. Screws 6 B.A. (special) „ „ 6d.
2. Nuts 6 B.A. .. .. „ „ 3d.

The chairs should be fixed loosely to the sleepers, the third rail placed in position and the nuts then tightened up.

New Meccano Parts.

95B. 3in. Sprocket Wheels .. each 8d.

103C.	Flat Girders 4½in. ..	½ doz.	10d.
103D.	„ „ 3½in. ..	„	8d.
103E.	„ „ 3in. ..	„	7d.
103F.	„ „ 2½in. ..	„	6d.
103G.	„ „ 2in. ..	„	5d.
103H.	„ „ 1½in. ..	„	4d.

Changes in Gear Wheels.—Accessory Part No. 26, Pinion Wheel ½in., will in future have 19 teeth instead of 20 as at present. The 19-tooth pinion is now in process of manufacture and will be available shortly.

No. 27A, Gear Wheel will shortly be made with 57 teeth instead of 56 and No. 31 Gear Wheel with 38 teeth instead of 40. These new Gear Wheels are not likely to be introduced until the end of the present year or the beginning of 1922. All the new gears will engage perfectly with the gears, either old or new, with which they have always been associated.

The Meccano Guild

A Fellowship of Meccano Boys

Member's Badge

Leader's Badge

The objects of the Meccano Guild are:

(*a*) To make every boy's life brighter and happier.

(*b*) To foster clean-mindedness, truthfulness, ambition, and initiative in boys.

(*c*) To encourage boys in the pursuit of their studies and hobbies, and especially in the development of their knowledge of mechanical and engineering principles.

The Meccano Guild has been formed to bring Meccano boys more closely together, and to make them feel that they are all members of a great brotherhood of boys, trying to help each other and themselves to get the very best out of life.

Every Meccano boy can join the Guild as an individual member, and so share in the privileges of membership. As soon as possible he should attach himself to a local Meccano Club, or if there is not one already in existence, he should take steps to form one with the assistance of his Meccano boy friends.

The Secretary of the Guild is always very glad to help with the formation of new Meccano Clubs, and to provide literature which will give all the necessary information.

Every new Meccano boy should immediately get to know all about the Guild in order that he may get the full pleasure from Meccano model-building, and the companionship and friendship of hundreds of thousands of other boys who are glad to welcome him as a friend.

Forms of application and all other information will be furnished by The Secretary, Meccano Guild Headquarters, Old Swan, Liverpool. Each member on joining is furnished with a beautiful Certificate of membership ready for framing, and should obtain the official member's badge.

Guild Notes

By the SECRETARY.

The Work of the Guild. I feel sure that it would surprise and please all officials and members of the Clubs if they could follow, as I do, the growing strength of the Guild movement and realise the work that is being done in brightening the lives of boys, and in helping to steady them and to form their characters. Both myself and my helpers have gained much knowledge and experience in Club work during the last few years. This knowledge and experience is at the disposal of all Club Leaders and Secretaries, and also of those Guild members who are thinking of forming new Clubs. If any assistance is required you may be sure that I shall be only too pleased to lend a sympathetic ear and to do all that I can to help the movement forward.

CLUB NIGHT—
THE BEST NIGHT OF THE WEEK
Your Club is affiliated with the Meccano Guild, the parent body of hundreds of other clubs. Meccano boys thus form one great fraternity. You can best help the movement by wearing your badge on all possible occasions, attending every meeting of your Club, and showing, by your example, how happy and contented are Meccano boys.

Club Membership Cards. The new Club membership card has now been received from the printers and I am able to illustrate it Those Clubs who have already applied for these cards have expressed their great delight with their appearance, and the idea behind them. That they fill a long-felt want seems to be generally accepted. The membership card is supplied free to affiliated clubs and a specimen card has been sent to all Club Leaders. Any Clubs who have not yet received their copies should apply at once, giving the number of members on their roll.

Special Club Prizes. Last year an inter-Club Model-building Competition was held with great success, and it is proposed to hold a Competition on similar lines during the present winter. The Competition—particulars of which appear elsewhere—is held with a view to encourage a spirit of friendly rivalry between the various Clubs, and the cash prizes are a valuable addition to Club Funds.

A Chance for Meccano Actors. An interesting Competition in connection with amateur theatricals will be announced in the next number of the *M.M.* I sincerely hope that all Guild members who have a leaning to acting will enter for this Competition, which will provide plenty of scope for their imagination and literary ability.

In this connection there is now available a short play entitled "*Nonsense Nana.*" This play is for three characters, two boys and their old nurse. It is suitable for being produced at Club Concerts and Exhibitions, and I shall be very pleased to forward a copy to any Club Leader who is arranging such a Concert and who would like to include a little Meccano play of about half-an-hour's duration.

The Meccano Guild Rally.

All Meccano boys are invited to the Guild Rally, the arrangements for which have now been completed.

The Rally will be held in the Parish Hall of Holy Trinity Church, Richmond Road, Barnsbury, London, N.1., at 7 p.m., on Saturday, the 26th November. Club Leaders, Secretaries and members of Clubs are invited to attend and I wish to emphasise the fact that parents, friends and non-members are specially invited to the Rally by the kindness of the Leader and the members of the Holy Trinity Meccano Club, who have kindly placed accommodation at our disposal. Already a number of the London Clubs have indicated that they will be attending the Rally, and I hope that everybody who is able to do so, will come along. I shall be at the Rally myself and hope to give a short talk illustrated with Lantern slides, mentioning the great work the Meccano Guild is doing, and the activities of the Clubs throughout the country. Also I shall hope to say something of the different Departments in the big Meccano Factory, and to show views of some of our latest models.

Mr. S. H. Wilson, the Leader of the "Holy Trinity Meccano Club," 29, Thornhill Road, Barnsbury, London, N.1., will be pleased to hear from any Clubs who propose sending representatives. He will also appreciate a postcard from any boys who propose visiting, although this is not absolutely necessary. Holy Trinity is but a short distance from "The Angel" at Islington, along High Street and Liverpool Road, being situated in Richmond Road. "The Angel" may be reached by several bus routes (including 4, 19, 30, 38, etc.) or the tube may be taken to King's Cross.

The Guild Recruiting Campaign.

HOW EACH MEMBER CAN HELP.

Now is the time for all enthusiastic members to do a good turn to the Guild movement. I want all Meccano boys to understand the objects of the Guild, for once they realise what the Meccano Guild stands for they will join our ranks enthusiastically and without hesitation. There are many thousands of Meccano boys in this country who, strange to say, have never yet heard either of the Meccano Guild or the *Meccano Magazine!* Most of us would scarcely believe this to be possible, so widely do we endeavour to make both known, yet the numerous enquiries I receive every day show this to be the case. I want you all to help me to get these Meccano boys to be Guild members indeed, it is the duty of each Guild member to do his best to spread the knowledge of the Guild far and wide.

I want every member to endeavour to recruit at least three new members and it was on this basis that we ran our Recruiting Campaign during the last two winter sessions. The Campaign has been started again this session and will be run through the two winter sessions. To each member who obtains three new recruits for the Guild a handsome medallion will be awarded. This medallion (which is here illustrated, actual size) is a mark of merit of which any boy may well be proud.

To those who already possess the medallion I am offering a further mark of favour. When they have recruited 6 more members for the Guild, in addition to the 3 which they recruited for their medallion—making 9 in all—I shall arrange to have their names engraved on their medallions, together with the words "Special Merit." Those members who wish to take advantage of this new offer should forward their medallion to this office so that it may be engraved when they have recruited the additional 6 members.

Club Notes.

NEW MALDEN M.C.—Visited the Shipping, Engineering and Machinery Exhibition held at Olympia last month. Working machinery and models were subjects of much interest. The Club opened the first week in October "as the result of much clamouring from the members." An excellent session enjoyed by the cricket team will be followed by the organising of a football team. *Secretary:* Master S. B. Evans, 22, Howard Road, New Malden.

LEAMINGTON M.C.—Very enjoyable meetings were held during the summer session, and the Club paid a visit to Dr. Crowther's workshop at the Bury, Offchurch. Dr. Crowther first took them through the laboratories, showing them the method of testing soil by shaking it with water and allowing it to stand for varying lengths of time. An electric bottle-shaker was much admired, all the members being of the opinion that they could put the electric motor to much better use in driving Meccano models! The cows were then visited, and a mechanical method of milking described.

Bazaar held in the Town Hall in aid of St. Mary's Parish funds, when it was hoped to raise £400. The Meccano Club had an Exhibition of 25 models on the stage. Interesting programme has been prepared, including hobbies and demonstration nights, competitions and lantern lectures. *Secretary:* Master G. M. Hare, 26, Willes Road, Leamington.

GT. YARMOUTH M.C.—A splendid and instructive display of what can be erected with Meccano was shown at an interesting evening at the Club's headquarters. One model exhibited was a reproduction of Euston Station, including signals, gantries, signal boxes, bridges, level crossings, and in fact all necessary equipment for a complete miniature railway. This model was most interesting and attracted great attention. Hornby Trains, kindly loaned by a local firm, were running on the track, and Mr. Weston, G.E.R. (Stationmaster of Southtown and Vauxhall), introduced Inspector Hammond of Norwich, whom the G.E.R. had kindly allowed to come over for the purpose of addressing the Club. The lecture lasted for over an hour and a half and was very much appreciated by the members. Mr. Linford, the Club Leader is to be complimented on the success of the Gt. Yarmouth Meccano Club. *Leader:* Mr. Linford, 81, Middle Market Road, Gt. Yarmouth.

CARSHALTON AND DISTRICT M.C.—Meetings are held every Monday evening from 7 until 9, and the Secretary will be pleased to hear from any Meccano boy who wishes to join. Three new members were enrolled at the second meeting. *Leader and Secretary:* E. H. Atkins, "Strawberry Cottages," 46, Mill Lane, Carshalton, Sutton.

JARROW-ON-TYNE M.C.—The Leader, Mr. W. Scott, has included in the winter programme a series of "Talks" on different mechanical and engineering principles, much appreciated by the members. *Secretary:* Master G. Stevens, Gorden House, Field Terrace, Jarrow.

NEW BRANCEPETH M.C.—Starts the winter session with a membership of 23. A visit to the Sunderland Shipyards and Quay was much enjoyed by the members, and during the summer months cricket matches were played and cycle runs held. *Secretary:* Master E. Furby, 9, Unthank Road, New Brancepeth, Durham.

STATIONERS (London, N.8) M.C.—Programme includes papers on light-houses, model railways, photography, electricity and fretwork. An interesting evening will be provided by a debate, the subject of which is "Meccano or Primus." The leader of the debate for Meccano is Master Scott, and for Primus, Master Bricklehurst. Excursions have been arranged to Hornsey Electricity Works, South Kensington Science Museum, Manor Farm Dairy Works and the Tower of London. Interesting evenings will be provided by holding Story Telling Competitions. The Club is sending 15 members to the Guild Rally on the 26th inst. *Secretary:* Master K. G. I. Scott, 42, Berkeley Road, Crouch End, London, N.8.

SPARKBROOK M.C.—Opened on the 6th ult. with an attendance of 18 members "all looking pleased, as if they had been looking forward to a treat for a considerable time." *Secretary:* Master F. H. Hubball, 71, Turner Street, Sparkbrook, Birmingham.

ST. MARGARET'S (Liverpool) M.C.—Programme for the new session was drawn up at the general meeting, at which 15 members were present. The first meeting held October 4th was a social, and this proved very successful. The Club are looking forward to a successful session under the leadership of Mr. V. A. Pearson. Several new members have been enrolled. *Leader and Secretary:* Mr. V. A. Pearson, 126, Hill Street, Liverpool.

MEXBORO' M.C.—A highly successful Exhibition held recently was visited by over 5,000 people. Some fine models were on show among which was a model of a blast furnace, with automatic elevators for carrying coal and metal. This model attracted considerable attention and "was the talk of the district." The membership now stands at 74. The Club Leader, Mr. H. May, gave an interesting lecture on "Motor Cycles," which was much enjoyed by the members. The Savings Bank is in a flourishing condition. *Club Leader and Secretary:* Mr. H. May, 17, High Street, Mexboro'.

ST. MARY WITH ST. GABRIEL (Newington Butts, S.E.11) M.C.—An interesting programme has been drawn up including model-building, competitions and lectures, and a very successful session is anticipated. Mr. Curle has kindly promised to assist the Club and Mr. Adams—who carried on the Club work during the Leader's recent indisposition—will still maintain his interest. A lantern lecture on early English history was much enjoyed by members of the Club and friends. *Secretary:* Master T. L. Bullock, 213, Newington Butts, London, S.E.11.

SOUTH KIRKBY M.C.—Recommenced activities on October 5th, and a very successful session is anticipated. A fine cricket club was run during the summer months. *Secretary:* Master J. Williamson, School House, South Kirkby, near Wakefield.

WHITLEY AND MONKSEATON M.C.—The Secretary writes: "With the coming session we expect to do great things both in sports and other work." We trust that his anticipation will be realised. *Secretary:* Master W. Hope, 16, Queen Road, Monkseaton, Whitley Bay.

HERNE HILL M.C.—The members of this club have been busy with out-door pursuits, but now they return with renewed enthusiasm to model-building evenings. The session commenced on October 3rd, with an increase of membership, and the members intend to issue a Club Magazine. *Secretary:* Master G. H. Dowsett, Cartref, 29, Frankfurt Road, Herne Hill, London, S.E.

SMALLHEATH M.C.—A New Club-room has been obtained at Little Green Lane School through the kindness of Mr. W. P. Innes, Chief Education Officer for the City of Birmingham. The programme has been arranged and a successful session is looked for. A suggestion is made for a Guild Rally of all the Birmingham Clubs on the lines of the Rally to be held in London on the 26th November. Arrangements are in hand with a view to putting this suggestion into practice. The Leader made the recent occasion of presenting Guild badges to new members an opportunity for a short lecture and ceremony. He states that: "Had it been the freedom of the city which was being conferred, the whole Club could not have taken it more seriously or given more genuine applause." The Club is expecting great things during the winter session, and Miss E. M. Edge has been appointed Minute Secretary and to assist the general Secretary. The Leader reports that there is some possibility of starting a "Girls Club" and we sincerely trust that it will be possible to follow the Claygate Meccano Club in this connection. *Secretary:* Master W. Edge, 131, Whitehall Road, Smallheath, Birmingham.

THORNTON HEATH (High School) M.C.—A number of illustrated lectures have been arranged, the first by Mr. H. Cox (of "The Builder and Architect") being a lantern lecture on "Old London." An invitation has been received from Mr. B. Sayers, the Croydon Librarian for the members to visit his Library for a special lecture. The Club will be represented at the Guild Rally on the 26th November by the senior members. The Football Club is making up a fixture list, and "The Spanners" Pierrot Troupe have already had a rehearsal and hope to give a concert shortly. *Secretary:* Master G. Holme, 61, Lodge Road, Croydon.

CLAYGATE BOYS M.C.—At a recent meeting a lantern lecture on the "History of the *Daily Mail*" was given. The members number 44, and are fortunate in having such an enthusiastic Leader as Mr. J. W. Haynes. The Club, along with the Girls' Club, is endeavouring to obtain an ex-army hut, so that meetings may be held every night. This is an excellent idea and we look forward to hearing of the success of the effort. *Secretary:* Mr. Brittnal, Vale Road, Claygate, Surrey.

CIRENCESTER GRAMMAR SCHOOL M.C.—The membership of this Club has now increased to 30, thus showing a great improvement on last year. Two interesting lectures have been given by Mr. Stradling, on "Time," and on the "Harmonograph." The Club looks forward to a successful session. *Secretary:* Master N. Gobey, "Clovelly," Victoria Road, Cirencester.

CARDIFF Y.M.C.A.—Have secured a Leader in the person of Mr. W. H. Whiting, and to make a good start the Club has arranged with a local dealer tor supply parts for building the Transporter Bridge. The Club then intends to exhibit this model in the dealer's window. Electric motors are on the premises for the Club's use when required, and power is available for driving these. Valuable prizes are being offered for model-building, and it is hoped to make the present session a record. The first meetings have proved so successful that a larger room has had to be procured. The Secretary hopes to extend still further the activities of the Club. At the Cardiff Y.M.C.A. a model railway is under construction on the roof of the boys' department. Permanent way is being equipped for steam, clockwork and electric locomotives, and during the winter rolling stock and track will be manufactured in the workshops. It is hoped to make the model railway the most complete system in the district, and a large station is being built, having a set of six rails, and a signal box which will be over 6ft. in length when complete. *Leader and Secretary:* Mr. W. H. Whiting, Central Y.M.C.A., Cardiff.

BLOEMFONTEIN (South Africa) M.C.—Despite the loss of the Club Leader, Mr. Large, this Club is making rapid progress. The membership is now over 20, and the Club has been able to add several new books to their library. A word competition was held recently, and K. Ham won the 1st prize, while G. Lupton carried off the 2nd prize. The Club takes great pride in a small silver cup, which is the trophy held for one year by the best all-round boy. A concert was held at the end of the second session, and forty people attended. The Club has now been affiliated and we welcome it to the Guild. The Club Leader is Mr. H. E. Lambert, 4, Loop Street, Bloemfontein, who will be pleased to hear from any Meccano boys who desire to join the Club. Meetings are held in the Presbyterian Church Hall, and the Club is now in its second session. Club funds for the first session show a balance in hand. *Secretary:* F. H. Lupton, 4, Loop Street, Bloemfontein, South Africa.

AIRDRIE Y.M.C.A. M.C.—Took part in the Burgh Centenary Procession with marked success. An Eiffel Tower, surrounded by a roundabout, both worked by electricity, were on view. A great number of people were present, and much interest was shown in Master J. McElroy, who was dressed to represent "Meccano." Also in Master W. Gemmell, who represented an "Indian Chief," Master Bert. Danskin as a "Clown," and Master Gardner Henderson as an "Engineer." Master G. Henderson was the builder of the Eiffel Tower. A social was held on October 31st to which the Westerton Meccano Club was invited, and a very happy evening was spent. An enjoyable social was held on Hallowe'en. The energetic Leader, Mr. Robert Bett, is helping to form a Meccano Club in Coatbridge. *Leader and Secretary:* Mr. R. Bell, "Cairnhope," Cairnhill Road, Airdrie.

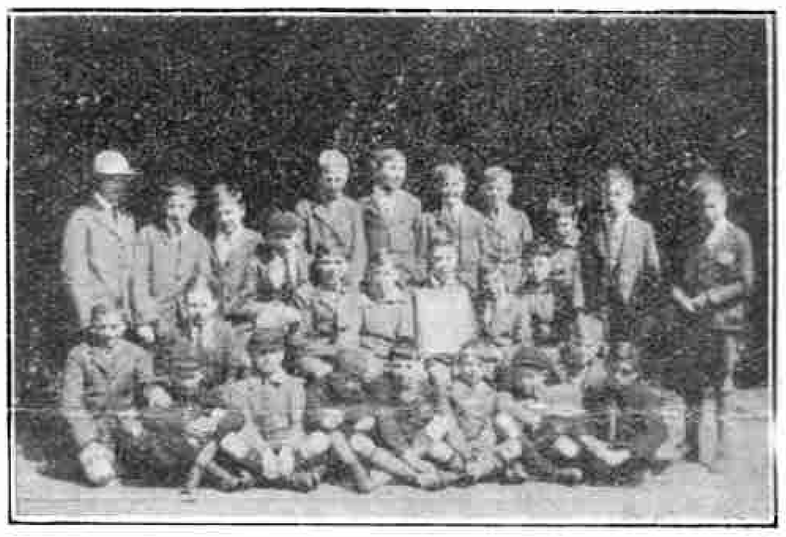
HEAMOOR M.C.—The Club outing took place on September 10th, when the members journeyed to St. Ives and Corbis Bay. Everything of interest was visited, and the "Caves" attracted particular attention. A very good syllabus has been drawn up for the winter session, and the Club looks forward to an instructive session. We should like to express our sincere sympathy with Mr. W. J. Berryman in his recent illness. *Secretary:* Master J. Reynolds, c/o Jamaica Place, Heamoor, Cornwall.

Clubs newly Affiliated.

CLAYGATE GIRLS M.C.—This new Club, the formation of which was announced in our last number, has now been affiliated, and we welcome it to the Guild. The Club is making good progress and already has 48 members. *Leader:* Mr. J. W. Haynes, "Fontmell," Covers Road, Claygate.

ST. DAVID'S (Tonyrefail) M.C.—The first meeting held on the 4th October. The Club opened with a membership of 10, and there are good prospects of adding to this number. The Vicar kindly consented to become the President, and opened the meeting with appropriate remarks. He told the boys that if they stuck together he would support them to the hilt. Mr. F. Morse, 68, High Street, Tonyrefail, has been appointed Club Leader, and the Secretary will be pleased to hear from any boys in the district who wish to join the Club. Meetings are held every Tuesday evening in a comfortable Club-room in St. David's Institute. An Exhibition of Meccano Models will be held at Christmas, and lectures are also being arranged. *Secretary:* Master James Davies, The Warren, Tonyrefail.

A Successful Meccano Club.



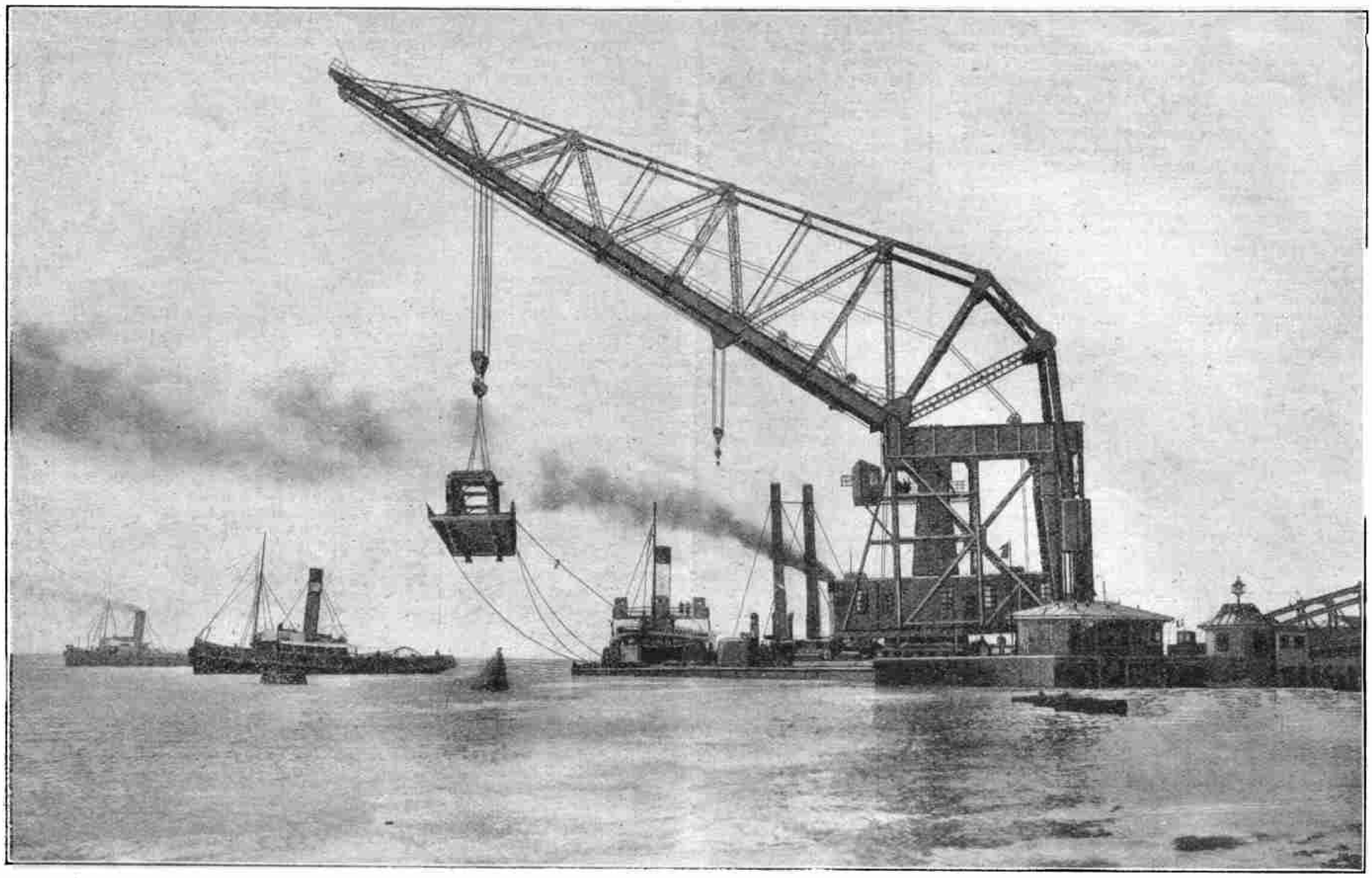
I have pleasure in reproducing the above photograph of the "Steyne School Meccano Club," Worthing. This club was commenced in the summer of 1920, and there are now 26 members. Two exhibitions were held last session. A collection was made for the local convalescent home for disabled soldiers and sailors, which realised over £1. Three lectures were given during the session on "Steam Engines" and "Natural History," by members of the Club.

Inter-Club Competition.

I have pleasure in announcing that it has again been decided to offer two prizes for the best models built by Clubs during the winter session. The first prize of £5 in cash will be awarded to the Club who designs the best model, and the second prize of £3 goes to the Club who designs the second best model. The only conditions of entry are that each model must be the joint work of the Club members and must be started and finished at the Club meetings under the guidance of the Club Leader. There is no restriction in regard to the size or type of the model, or the number of parts used in making it.

The subject of both first and second prize models last year was, curiously enough, the same. The first prize for an exceptionally fine model of a fair-ground, being won by the New Malden M.C., and the second by the Norwich Enterprize M.C. Other models submitted included Railway Stations, Graving Docks and Warehouses. There is, however, a very large range of models suitable.

The judge will be the President of the Guild, Mr. Frank Hornby, whose decision will be final. No special consideration will be given to the size of the model, the award being based principally on ingenuity, novelty, and mechanical accuracy. The model itself should not be sent for adjudication, all that is necessary being a clear photograph or drawing with a simple description of any points which require explanation. The closing date of the competition will be March 31st, 1922.



THE 200-TON FLOATING CRANE "MAMMOTH," LIFTING A BRIDGE WEIGHING 152 TONS, AT NEW BRIGHTON FERRY.

THE "MAMMOTH"

A 200-Ton Self-Propelling Floating Crane.

The Mersey Docks and Harbour Board have in use in Liverpool this large self-propelling floating crane, capable of handling loads up to 200 tons, and known as the "*Mammoth*." It is of the derricking-jib type and the fact that it is able to deal with heavy loads over the gates of large graving docks is a particularly valuable asset especially in ship repairing.

The "*Mammoth*" is carried on a self-propelled pontoon, 154ft. in length and 88½ft. in beam. The crane-arm is so placed that the maximum out-reach may be obtained either over the side or over the stem of the vessel. The crane is thus able to handle loads in narrow entrances, or in restricted places. It has two principal parts, the framework and the jib, the latter being mounted on a tower 66ft. in height, and built in the form of a truncated cone. The jib is connected to the upper platform of the framework at the front by two pins, and two links connect it to a movable counterweight, situated between the platforms at the rear. This counterweight is operated by vertical worm shafts, the rotation of which raises the counterweights, thus lowering the jib and *vice versa*.

The larger of the two pairs of lifting blocks is fixed, but the other is capable of being traversed throughout the full length of the jib. Loads up to 90 tons are dealt with by the latter pair, while loads of over 60 tons and up to 200 tons are taken by the pair of fixed blocks. In each case, the blocks may be used singly up to their maximum capacities, each being capable of individual operation.

The crane may be slewed through a complete circle and the whole of the movements are electrically driven by ten electric motors. These are operated on the Ward-Leonard system, by which any load may be hoisted or lowered from extremely low speeds to maximum, without any change in the mechanical transmission. The Ward-Leonard system also reduces wear and tear to a minimum and eliminates loss of energy, starting and stopping being effected without the setting up of undue stresses. The power is transmitted from the motors by worm gears and gear wheels, while electrical brakes are fitted to all motor shafts. The handling of the load is a comparatively simple matter, only one man being required for even the heaviest loads. From the central cabin, situated at the top of the framework and just below the jib hinge pins, the operator has at all times a clear view of the load with which he is dealing, as well as of the deck of the pontoon. Of this deck an area of about 300 square yards on the after portion is reserved for the reception of loads for transit, the structure being specially strengthened to support the maximum weights.

The pontoon is propelled by twin screws, driven by two sets of triple-expansion Marine type engines, which work at a steam pressure of 150lbs. per square inch. The crane was built in Holland and on a trial trip on the River Meuse attained an average speed of 4·85 miles per hour. Incidentally it may be mentioned that it was towed from Schiedam to Liverpool without the jib being dismantled. One set of engines is arranged so that it may be uncoupled from the propeller-shaft and utilised for driving the dynamos of the electric generating plant, which produces the supply of electrical energy necessary for the crane movements. A separate steam-driven generator is provided for the extensive electric light installation, by which the whole of the vessel is illuminated to facilitate night working.

So far as heights of lifting and radii of action are concerned, the scope of the "*Mammoth*" is exceptional, the crane being capable of lying alongside the largest vessel afloat and delivering loads up to 60 tons from the hold of the vessel direct on to the quay.

We have described this important crane in detail, as we feel that it cannot fail to be of great interest to Meccano boys. We are sure that many of our readers will derive much pleasure from constructing a replica of the "*Mammoth*" with Meccano parts.

Our photograph is reproduced by the kind permission of the Mersey Docks and Harbour Board.

Meccano Story Competition

In No. 19 of the *Meccano Magazine* we announced the result of the Essay Competition, and printed the winning story. We have pleasure in printing below the story which won the third prize.

MECCANO TO THE RESCUE!

By MASTER L. I. HUNT.

"Jack, I've had a challenge!" said my friend Lionel, meeting me on my way home from the Meccano Club. "You know young Seymour, that youngster in the third? He's started geometrical drawing or some such stuff, and when I ragged him about it, he said he'd bet me ten shillings I couldn't show him a design half as good as his. Of course I took him on, but I can't draw for nuts, and I look like losing the game."

"Did you say a design was what you wanted?" I asked.

"Yes; any old thing will do *him*, but I can't do *it*!" answered Lionel.

"I can do it, though," I replied.

"What!" shouted my friend; "*You* do it, why you can't even *write* decently!"

"You wait and see!" I said.

. . . . . .

The next night I went round to the Club and borrowed a few gear wheels and other parts, and returning home, set to work to build a Meccanograph. I assembled the parts, tested and oiled the bearings and wheels, and spent a good hour adjusting and improving, after actually completing the model before I was satisfied. Then I took a well-earned night's rest. Next morning I met Lionel on the way to school and asked him how he was getting on.

"Rotten," he replied, "I've only to-day to win that bet, and I simply can't do it."

"Look here," I said, holding out the pick of my evening's work.

"By Jove!" exclaimed Lionel. "You didn't do these did you?"

"Yes I did!" I grinned, "Will any of them do?"

"Even this one would make Seymour look small," Lionel replied pointing to my first attempt, "but *this* one is simply marvellous. How on earth you thought of such beautiful designs beats me entirely, let alone how you managed to put them on to paper!"

"You get that money from Seymour," I replied, "and come round to tea this afternoon. It is necessary!"

"I will," he agreed, "and thanks awfully!"

. . . . . .

"Well, what did Seymour say?" I asked as I let Lionel in that afternoon.

"The designs absolutely knocked him out," he replied. "He seems to regard me now either as an angel or a demon or——, well, something mighty clever, specially sent down to earth to plague him! I believe he would have kissed my feet if I'd let him; but of course I couldn't take his ten shillings. I gave him the designs instead."

"Good for you!" I congratulated. "Come and be introduced to your unknown benefactor."

Then I took him into my room and showed him the Meccanograph. The model absolutely seemed to fascinate him. He spent the whole evening making different designs, one after another after I had shown him how to alter the connections. When at last he showed signs of getting tired—although he was no less eager—I showed him the Meccano Manual, and explained how easy it was to build Meccano models. Well, next morning I saw him gazing rapturously into my favourite dealer's window, feeling for his purse!

"Lend me ten shillings, old chap," he pleaded.

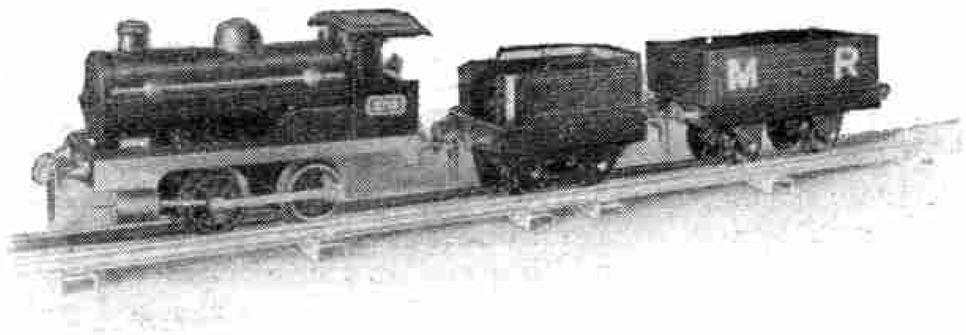
But I made young Seymour do that!

HORNBY CLOCK WORK TRAINS

Perfect Mechanism, Beautiful Finish, Standardised Parts.

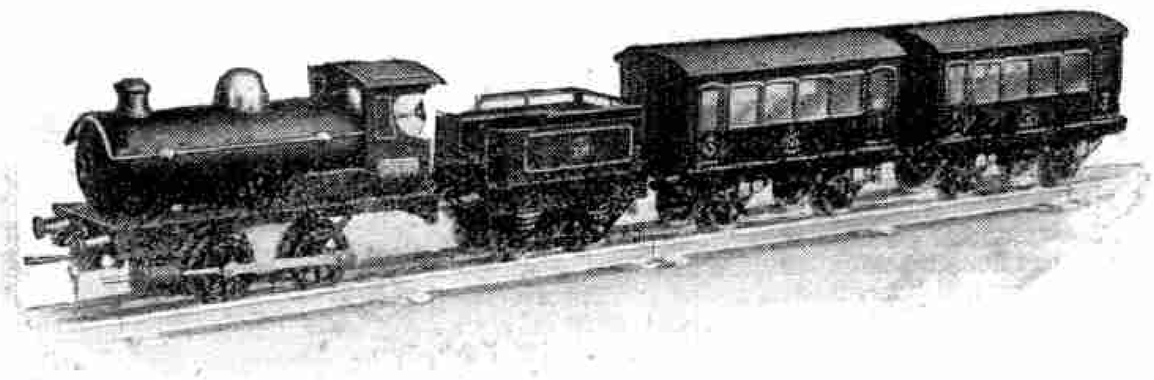
The Hornby Trains are manufactured by Meccano, Ltd., and they are built on the Meccano principle. All the parts are standardised, and Locos., Tenders, Coaches, and Wagons may be taken entirely to pieces and rebuilt. If one of the parts is lost or damaged, you can fit a new one yourself. *A HORNBY TRAIN LASTS FOR EVER!* They are beautiful pieces of workmanship, with perfect clockwork mechanism ensuring smooth running, and each train is guaranteed.

The Hornby Trains are all made in Gauge 0, in four colours to represent the London and North Western, Midland, Great Northern, and Caledonian Railway systems. All the Locos. are fitted with reversing gears, brakes, and governors. The Coaches are beautifully enamelled in colours, and the trains are packed in strong attractive boxes.



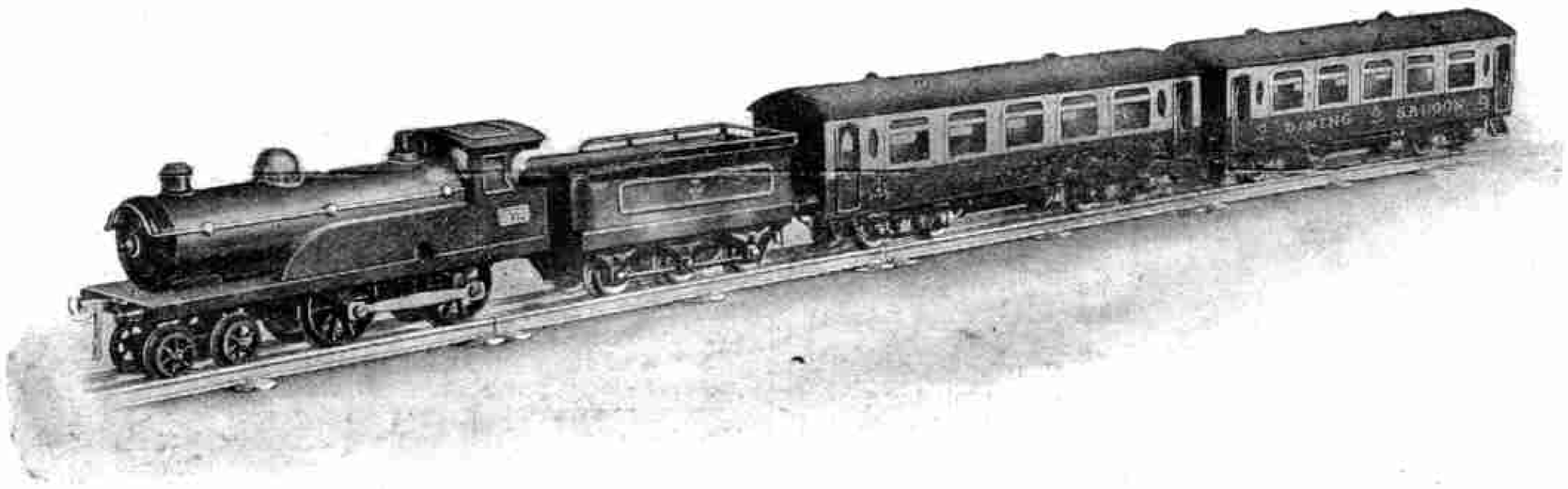
No. 1 GOODS SET.

Contains Loco Tender, and one Wagon, with set of Rails including a 2ft. diameter circle and two straights. Complete set, price 30/-.



No. 1 PASSENGER SET.

Contains Loco., Tender, and two Coaches, with set of Rails including a 2ft. diameter circle and two straights. Complete set, price 38/6.



PRICES.

	H.T. No. 1	H.T. No. 2
LOCOS.	each 18/6	each 40/-
TENDERS	„ 4/6	„ 5/-
WAGONS	„ 4/6	„ 4/6
COACHES	„ 6/6	„ 16/-

RAILS. Straight or curved, for No. 1 or No. 2 6/- per dozen.

CROSSINGS. Right or acute angle, 2/6 each.

POINTS. (Right or left hand) for 2ft. or 4ft. diameter circle, 5/- each.

No. 2 PULLMAN.

Loco. and tender of a larger type, measuring 17in. in length. A superior mechanism has been adopted making this the most satisfactory clockwork train yet produced. The Coaches are beautiful both in colour and finish. Each set includes a Loco., Tender, Pullman, and Dining Saloon as illustrated, with set of Rails making a 4ft. diameter circle. Complete Set, price 80/-.

No. 2 GOODS.

This is similar to the Passenger Set No. 2, but with two Wagons in place of Coaches. Complete Set, price 57/6.

THE NEW Meccano Prize Competition—£250 in Prizes.

Another big Meccano Model Building Contest is announced, and we want every Meccano boy to know all about it. There will be hundreds of prizes awarded, including nine prizes in cash to the value of £100, and Meccano Outfits to the value of not less than £150. As was the case last year the Competition will be divided into three sections.

1. For boys under 10 years of age.
2. For boys between 10 and 14 years of age.
3. For boys over 14 years of age.

In addition to these prizes the Meccano Guild is again offering three awards of £5 each in cash to the Member of the Guild who gains the best prize in his Section. Forms of entry may be obtained either from your dealer or from us.

There are no restrictions or entrance fees. Any Meccano boy can enter, and the competitor sending in a simple model made with a No. 0 Outfit stands just as good a chance of winning a prize as does the competitor who sends in a complicated model made from a No. 6 Outfit. **This Competition will close on April 15th, 1922, for entries from the United Kingdom, and on May 31st, 1922, for entries from the Colonies.**

Our Mail Bag.

The Editor has a little talk in this column with his Meccano boys. Whether he has space to reply to them all here or not, he is always glad to hear from them. He receives hundreds of letters each day and only those which deal with matters which are likely to interest other Meccano boys can be dealt with here.

Correspondents will help the Editor if they will write on one side of the paper only.

B. Waistnage, Cantley.—We are glad you find the *M.M.* more and more interesting. We quite believe it seems to you a very simple matter to further enlarge our Magazine, but we would assure you that the whole matter bristles with difficulties. We shall overcome them in due course, however, and the *M.M.* will then be the biggest and brightest boys' paper in the world.

H. Loming, Doncaster.—We are glad to know that your heart jumps with joy when you hear from us. We like to have letters from such boys as yourself, and our pleasure shows itself in our replies.

V. Hammond, New Malden.—" The winning of the £5 prize has done me as much good as the expenditure of the money will benefit the boys of my Club. One of H.M. Inspectors visited the School purposely to find out what the Meccano Club was doing for the boys. He was indeed pleased and the Managers of the School are also very pleased with our work." We follow the doings of the New Malden Meccano Club with very great interest. We are gratified to know that competent outside authorities think so highly of your endeavours and the results you have obtained.

F. Louton, Slough.—You have omitted to put your address at the head of your letter. If you will write us again, we shall be glad to give you all the assistance in our power.

L. C. Edwards, Hull.—You are quite right, Laurence, we like straight letters, and we have no objection whatever to your criticisms of the sentence under the heading of the *Meccano Magazine*. Looking at it the way you do, it may seem selfish, but on the other hand, it is just a simple truth. We shall have to give your other suggestion a little more consideration. We are always glad to hear from you.

R. Deakin, London, N.12.—

" I long for the hour when school is done,
I do not walk, I simply run,
For something awaits me that gives me joy,
Meccano, the toy for every boy."

It is nice to know how much you enjoy playing with Meccano, and your little verse shows us how enthusiastically you pursue the hobby.

B. Burkin, Wallington.—We have many times had the suggestion that the story of Dick's Visit to the Meccano Factory should be written, and we shall no doubt publish it before very long. All the interesting little incidents which took place on his visit have been recorded, and when it is issued the book will be a very fascinating one.

S. A. Stray, West Horsham.—The designer of the St. George and the Dragon model would blush with pleasure if he read your letter. It is certainly a clever model and it has already gained many admirers.

John D. Tonkinson, Wolverhampton.—Meccanoland is getting along splendidly and the inhabitants are having a wonderful time just now. You were a long time writing to us, but your letter was such a nice one, that we have forgiven you. We will try to publish the *M.M.* oftener.

Jack Johns, Rivera Pinente.—Of course if you sign yourself " Jack " we expect you to be a boy, and you must forgive us for addressing you as " Master." You seem to lead a very roving life and to see a great deal of the world. We can tell by your letters that you are a happy girl and we should like to hear from you often.

Geo. Clement, Christchurch.—You are right, George, Meccano links up the four corners of the earth. If you wish very hard for a Hornby Clockwork Train about Christmas time, we shouldn't wonder if you got it. The Guild Secretary tells me that you have secured two recruits, and you will be entitled to a Recruiting Medallion when you have secured another.

Graham E. Bennett, Merton Park.—" Mr. Hornby ought to have a statue erected to him at every street corner, and I hope he will live long and go on inventing new things." This might be a very good way of perpetuating his memory, Graham, but just think of Mr. Hornby's feelings if he were to meet himself at every street corner all his life long. We think we should spare him such a horrible experience.

E. Farrar, Pelton.—Thank you for your suggestion that we publish the lives of great inventors in the *M.M.* We have these in mind, and have articles on these lines in preparation.

J. Fisher, Radford.—We are sorry to learn that you have had your Meccano badge stolen from you whilst playing football. We frequently hear of incidents like this, and we advise all Meccano boys to keep a careful watch over their badges.

Tom Kendall, Southampton.—Many thanks for your photograph of the 40 ton pontoon crane used in the Fishguard Harbour. This is a very fine structure, and we may be able to publish an illustration of it in a future number of the *M.M.*

R. Roebuck, Huddersfield.—You are right in saying that yourself and your chums have been missing a good thing by not forming a Meccano Club, and we are glad to see that you are now making up for lost time by working hard. You have made very good progress, and your syllabus of lectures is an excellent one. Yourself and your fellow-chums have our very best wishes.

R. Hill, Nottingham.—Particulars of the Guild Correspondence Club have been sent to you by post. We appreciate your keen enthusiasm for Meccano, and we hope your connection with the hobby will be a long and happy one. We are afraid you will have some difficulty in constructing a cinematograph with Meccano parts, but there is no harm in trying.

Jack L. Francis, Bramford.—Many thanks for your offer to write articles for us. We shall be very glad to give these consideration. You have a gift of happy expression which you should certainly cultivate. There is much of interest in " Metallurgy " which we could publish in the *M.M.*, but for the present we must confine ourselves to articles suitable for the majority of our readers, and not too technical and difficult of understanding. We shall certainly publish more and more articles on engineering topics, dealing with them in a simple and easily understood way.

A. McGregor, Wallsend.—We were glad to receive your letter, and we hope your boy will qualify for a No. 2 Hornby Train Set before Christmas. We note that the sentence " Present for Tommy—and Daddy—Meccano " took a prize in an " Answers " competition, and we agree with you that this sentence sums up Meccano very well.

T. Bulling, Cape Town, S.A.—We are always pleased to hear from any of the members of the Wynberg Meccano Club. We often hear of Meccano boys going to fancy dress balls dressed in Meccano costumes, and they very frequently win prizes. If we can help you with your own costume we shall be very glad to do so.

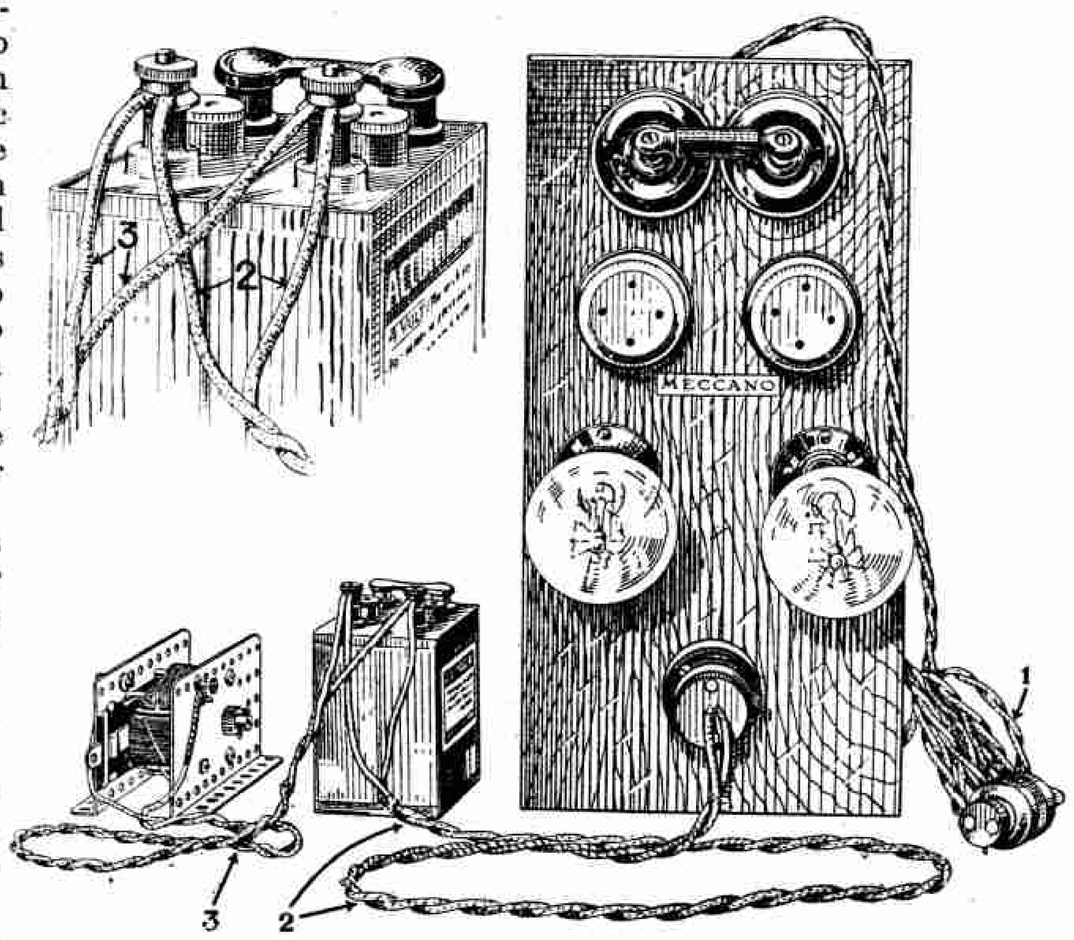
R. Higgins, Lassodie.—We see no reason why, because yourself and your friends have a football club you should not also have a Meccano Club. We know many instances where a Meccano Club is the parent Club, with successful football, cricket, cycling and other clubs as off-shoots. There is nothing which holds boys together in harmony and good-feeling more effectively than a well-managed Meccano Club.

David Patterson, Ballymena.—Many thanks for your suggested secret code for Meccano boys. This is quite sound but rather too complicated we fear.

B. D. Virmani, Dera Ismail Khan.—We were interested in reading your verses, and we appreciate your glowing description of the Meccano hobby, which evidently contributes much to your happiness. The verses are a little too lengthy to appear in this column.

J. W. Hatfield, Croydon.—" All is changed by the magic touch of Meccano. My Outfit is my truest friend, and the wisest man on earth could not find a better friend than a Meccano Outfit. Meccano has been my constant companion for five years. Mr. Hornby is for ever thinking out something for his boy friends." He is, indeed, John, and you would be happier still if you knew what further good things he has in preparation for his Meccano boys. You will hear more of them in a little while.

The Meccano Charging Board.



To meet the requirements of many Meccano boys, who wish to run their Meccano Electric Motors direct from the main current in their own homes, we have designed a simple type of apparatus which is safe and easy to use. This is the Meccano Charging Board which may be obtained through any Meccano dealer, price 50/- complete (except for two 60-watt lamps).

The Charging Board is connected by an adapter to an ordinary electric lamp holder, but it is important to note that it can only be used where the source of supply is direct current from 200 to 250 volts. Therefore, before deciding whether to use the Charging Board, enquiries should be made from the local Electricity Offices as to the nature and voltage of the current of the town main.

In addition to enabling the Meccano Motor to be run direct from the main, the Meccano Charging Board may also be used for charging accumulators and in this connection it is very economical in use. To charge an accumulator it is necessary to leave it on charge for about 10 hours. If a direct current of, say, 200 volts be used the cost of charging a cell would amount to about 4d. Several accumulators may be charged at the same time at no extra cost.

Our illustration shows the Meccano Charging Board connected to allow the Electric Motor to be run direct from the main, and the enlarged drawing shows the method of making the necessary connections to the accumulator.

Those boys who are interested in electricity and who are handy with their tools can easily make the Charging Board themselves at a reduced cost, and to enable them to do this we have prepared full instructions for making and wiring the Charging Board in the form of an illustrated leaflet, the price of which is 3d. post free.

The Meccano Manuals.

There are three Meccano Manuals of Instruction, Book No. 1 is the regular Manual which is included with the main Meccano Outfits and contains instructions for making 323 fine models. Price 2/6 (postage 3d. extra). Book No. 2 illustrates a large number of fine models and describes a series of simple scientific experiments. Price 1/3 (postage 2½d. extra).

The new Manual No. 3 contains illustrations and instructions for building a large number of entirely new and imposing models of great beauty. These include such interesting models as the Theodolite, Signal Gantry, Level-Crossing Gates, Revolving and Hydraulic Cranes, Coal Cutter, Lathe, Dredger, Planing Machine, Travelling Gantry, Wire-covering Machine, and Twin Elliptic Harmonograph.

The Manual is illustrated by an entirely new process, by which the component parts of every model may be clearly seen. The price is 1/3 (postage 1½d. extra).

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